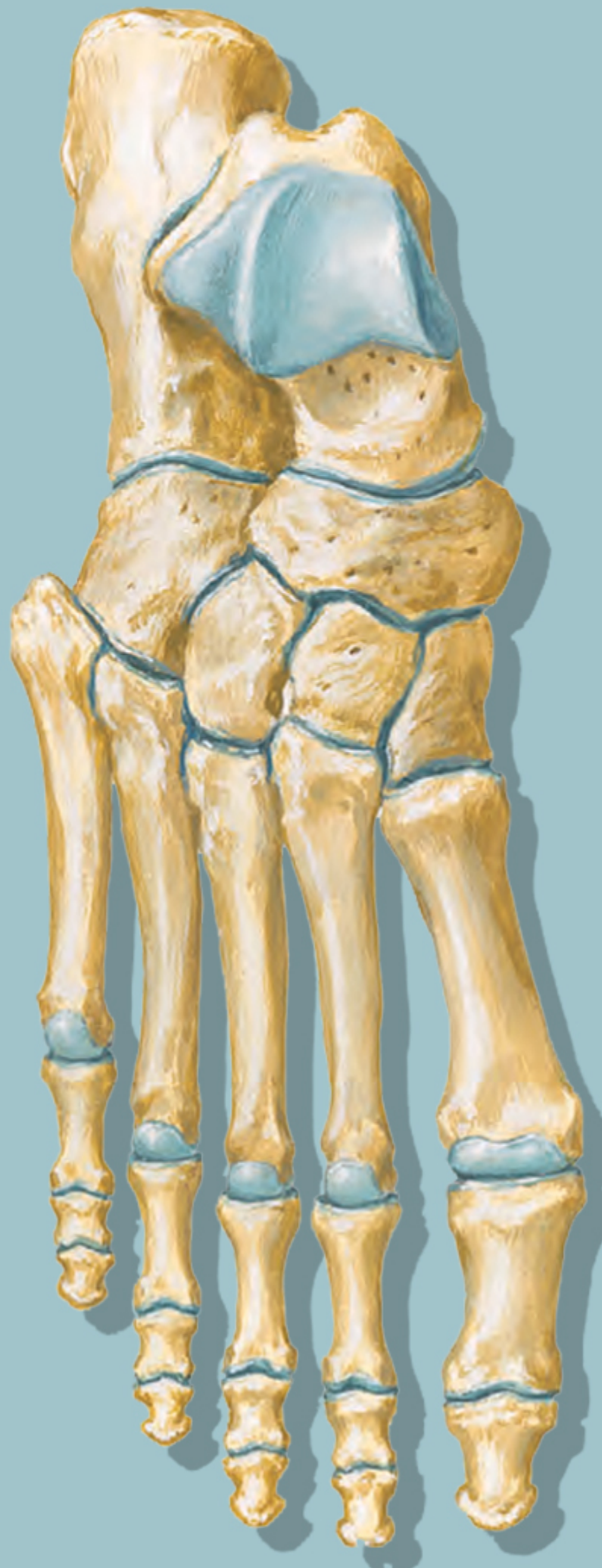


Notes In Anatomy

1st Year



Lower Limb

All Vessels of Lower limb.
All Nerves of Lower Limb.
Joints of Lower Limb.
Spaces of Lower limb.
important muscles.
important Structures.

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Lower Limb

①

التاريخ

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Adductor Canal

subartorial Canal

Hunter (+) Canal

● Def: inter muscular passage in The middle $\frac{1}{3}$ of medial side of Thigh.

● Description: { formed By Apex of femoral A overlapping
1 **upper End**: { of Sartorius on adductor magnus.

2 **lower End**: { formed By Adductor Hiatus

3 Boundaries {
Anterio medial { Sartorius
"Roof" { strong fibrous sheet
Bet Vastus M + Adduct. M
Anterio Lateral → Vastus Medialis
Post wall { Adductor longus (Above)
"Floor" { Adductor magnus (Below)

● Contents:

[I] Femoral A:

Enter The canal from its upper End.

Leave ~ ~ Through ~ lower ~ to Cont. As Popliteal



□ Contents of superficial fascia

Covering femoral triangle :

- 1 one vein G.S.V.
- 2 two groups of sup. ing. lymph nodes Vertical around
- 3 Three Arteries sup. ing. arteries. Horiz. Below
- 4 Four nerves femoral Br of genito femoral n
• ilio inguinal n

Femoral sheath

● Definition: fascial sheath surrounding upper $1\frac{1}{2}$ " of femoral Δ .

● Formation :

Ant wall (Downward prolongation of fascia transversalis of A.A.W) and post wall (Downward prolong. of fascia covering psoas mg - iliacus of p.A.W)
 Blends inferiorly $\bar{e}$ adventitia of femoral vessels and unite together at sides of femoral vessels creating sheath

● Description Ant. wall + Post. wall
 Funnel shaped Apex : Directed downward
Base : Directed upward Beh. ing. lig.
med. margin : Vertical $1\frac{1}{2}$ cm long.
lat. margin : oblique 4 cm
2 fibrous septa : extend from Ant wall



to post wall dividing it into 3 compartment.

• Compartment of femoral sheath:

- ① lat. Compartment → Femoral A + Femoral B of genit fem. n.
- ② intermediate ~ → Femoral v.
- ③ medial ~ → femoral canal + some fat + 1 lymph node

Femoral canal

• Definition: medial compartment of femoral sheath

• Description:

Conical in shape $1\frac{1}{2}$ cm long

has [

Apex: Downward Blends & adentatia of femoral vessels + lies Behind saphenous op

Base: upward: Femoral Ring

Femoral Ring

• Definition: upper End of femoral Canal

• Description:

Closed By Condensation of fatty tissue (Femoral septum)

Has [

Ant inguinal ligament.

post Pectineal ligament.

med. Sharp crescentic Base of lacunar lig.

lat. Femoral Vein

• Contents of femoral Canal:

- 1 Condensation of fat.
- 2 Lymph node of Cloquet.
- 3 Lymphatic vessels.



• function of femoral canal:

- ① provide potential space to femoral vein to distend if ++ in venous return.
- ② provide passage for lymph vessels from connecting Deepinguinal L.V. + External iliac L.V.

• Applied Anatomy:

Femora Hernia

• Definition:

Protrusion of Any Abdominal viscera (part of intest.) Through femoral canal into Thigh.

• Course:

- 1 Enter femoral Ring By pushing of femoral septum.
- 2 passes Through canal.
- 3 passes forward Through saphenous opening to pushing cribriform fascia + skin.

• pathogenesis : ++ intra abdominal pressure as: in (pregnancy - chronic Cough) → protrusion of part of small intestine Through femoral Ring Because it represent weak point of Abdominal wall.

Common in female Due to wider femoral Ring.



Femoral Nerve

- Branch from lumbar plexus.
- root value: from post. Div's. of Ventral rami of
L2 - L3 - L4

• Course - relation:

- ① appears in abdomen at lat. Border of psoas Mg.
- ② runs in groove bet. psoas Mg and iliacus.
- ③ leave abdomen by passing behind midpoint of inguinal ligament to enter front of Thigh. Δ
- ④ 4cm Below inguinal lig. it divide into ant - post Division and bet. it (lat circumflex Fem. A)

• Branches:

Before it divide:

- 1 muscular Br for iliacus. (Abdomen)
- 2 ~ ~ ~ Pectineus. (Thigh)

After Divide:

Ant Division:

- ① intermediate Cut. Thigh.
- ② medial Cut. Thigh.
- ③ Br to Sartorius.

post Division:

- ① Branches for each head of quadriceps femoris muscle.
- ② Articular Br for hip joint
- Through ⑥ to Rectus.
- ③ ~ ~ ~ knee
- ~ ~ ~ 3 nerves to vasti
- ④ saphenous nerve.



saphenous nerve:

Accessary
obturator

● root value **L3, L4**

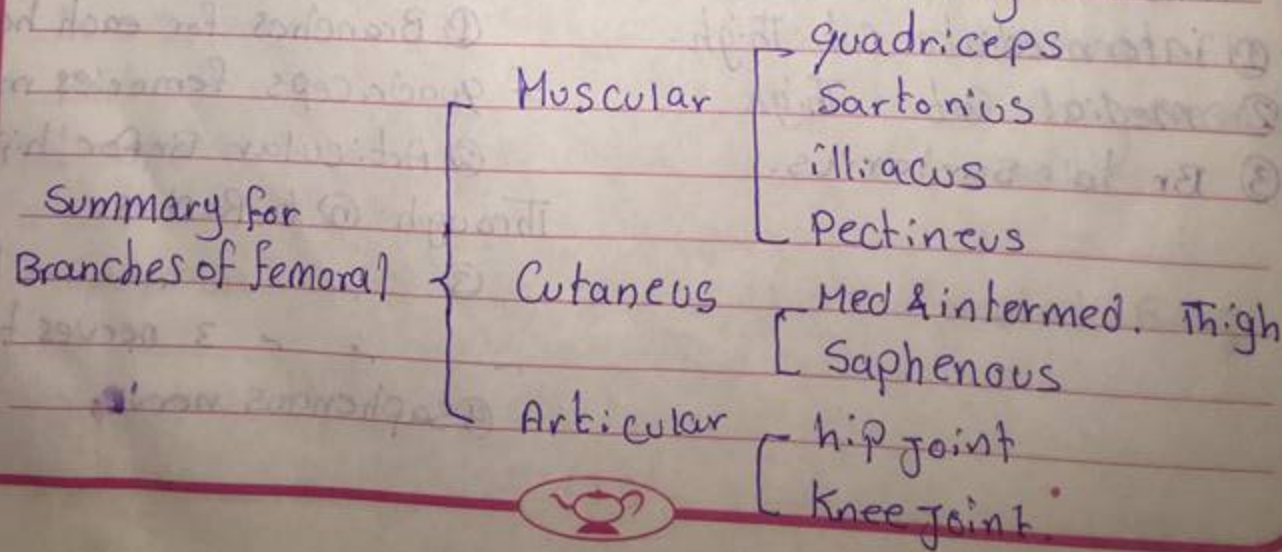
● Course - relation:

- ① Runs lateral to femoral A. Downward.
- ② Crosses superficialy from lat to medial.
- ③ leave The canal by Pierce fibrous Roof.
- ④ Pierce fascia lata Bet. Gracilis - **sartorius** to reach superficial fascia.
- ⑤ Descend along medial side of knee - Leg accomp. e G.S.V.
- ⑥ Enter foot in front of medial malleolus superficial to Extensor retinaculum.
- ⑦ Runs on medial side of dorsum of foot Down to Ball of Big toe.

● Branches:

- 1 Branch to subsartorial plexus of nerves.
- 2 infra patellar Br for patellar Plexus.
- 3 Cut. Branches for: 1 med side Leg.

2 ~ ~ Dorsum of foot Down to Ball of Big toe.



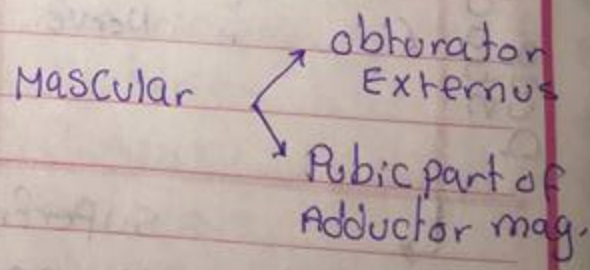
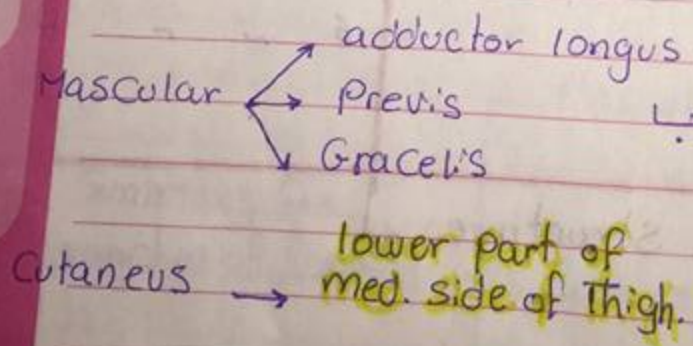
obturator Nerve

- Branch from lumbar plexus.
- root value: Ant Division of ventral rami of L2,3,4
- Course - relation:
 - 1 Appear in abdomen at medial of psoas Major.
 - 2 runs Downward on side wall of pelvis.
 - 3 leave abdomen and Enter pelvis By Passing Through obturator Canal. thigh
 - 4 after passing Through The Canal it Dividing into Ant. + post. Division.
 - 5 Ant. Division passes in front of Adductor Previs. Bet. it and adductor longus.
 - 6 post Division passes Behind Adductor Previs after piercing obturator externus muscle to pass Bet previs + adductor magnus.

• Branches :

Ant Division

Post Division



Articular → Hip joint

Articular → Knee joint



Sciatic Nerve

- one of 2 term. Branch from sacral plexus.
- root value : Ventral rami of L4,5 S1,2,3

Course :

1 Leave pelvis and enter gluteal region By passing Through greater sciatic ~~notch~~ Foramen Below Piriforms.

2 Leave gluteal Region and Enter Back of Thigh at lower Border of quadratus femoris midway Bet. greater trochanter and ischial tuberosity.

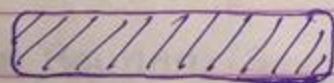
3 Descends vertically Along middle line of Back of Thigh to reach Superior Angle of popliteal fossa. where it terminate By gives 2 terminal Branches :

- Tibial n = medial popliteal.
- Common peroneal n = lateral ~

Relations :

① in The gluteal Region :

② in The Back of Thigh

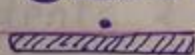


Gluteus Max.

○ Sciatic



obt. int + 2 Gemelli



Quadr. F + its nerve



separate it from Hip joint

L

Biceps

على
العضلة



long Head of Biceps



semitendinosus



Post surface of Adductor magnus

● Component of sciatic nerve :

Has 2 Component Surrounding By Common sheath :

1 Tibial portion : Formed By v. rami L4, 5 S1, 2, 3

2 Common Peron. portion : ~ L4, 5 S1, 2

- Some times The two Component Arise separately from Sacral plexus and in This Case

- [Tibial pass. Bel. Pir. for.
- [C. Peron. Piercing ~

● Branches of sciatic nerve :

Muscula	{	Common peroneal portion → short Head of Biceps fem.
		Tibial Portion { - semi membr. - semi tendenosus. - long Head of Biceps. - ischial part of magnus.

Articular → Hip

Terminal : 2 terminal Branches

● Arterial supply of sciatic (N) :

Sciatic A Br from inf. gluteal A.

superficial inguinal L.N.

	Horizontal group	vertical group
site	Lies Below and parallel to inguinal lig.	lies Along <u>terminal</u> Part of G.S.V.
Lymphatics Receive	Divide into : ① medial : • Ant. Abdom. wall Below Umbilicus. • perineum (urethra - lower 1/2 of Anal Canal - Ext. genit. exc. test.)	From most of : superficial lymph. of lower limb.
	② lat. group : <u>Back</u> Below iliac crest	N.B : Efferent L.V. from sup. inguinal L.N. passes Through saphenous open. to join Deeping L.N. w pass Through F. canal to join Ext. iliac L.N.

lesser sciatic foramen

● Boundaries

- lesser sciatic notch
- sacrotuberous - sacrospinous Lig.
- tendon of obturator internus

● contents

- 3 structure pass from greater sciatic foramen :
1 nerve to obturator internus.
2 pudendal n
3 internal pudenda vessels.

[2] Femoral vein:

Enter The Canal Through its lower End as Comb. of poplit. vein
leave ~ ~ ~ upper ~ .

Relation to A

upper	posterior to A
Middle	posterior lateral to A
lower	lateral to A

[3] Descending genicular A :

Br From Femoral A at lower part of The Canal
and Leave The Canal By Piercing fibrous roof....

[4] Nerve to vastus medialis :

Br From Femoral N at Δ , Enter The Canal from
its upper End, runs in The Canal Lat to Femoral A
and leave The Canal By Piercing vastus medialis

[5] Saphenous N :

Br From Femoral N in Δ , Enter The Canal Through
its upper End, Cross superficial to Femoral A from
lat to medial and leave The Canal By Piercing its
fibrous sheath (roof) [above lower End of Canal].

[6] Subsartorial plexus of Nerves :

supply its overlying Fascia lata - skin of med side of
Thigh & Receive Br From

Med. Cutaneous @ of Thigh

Saphenous @

Ant. division of obturator @

Greater Sciatic foramen

- Boundaries
 - greater sciatic notch
 - sacrospinous - sacrotuberous.

Contents: (A) piriformis muscle tendon

① 3 structure Above it: ② 6 structure Below it:

- | | | |
|-----------------|-----------------|--------------------------------|
| 1 sup gluteal N | 1 inf gluteal N | 4 sciatic N |
| 2 sup ~ A | 2 ~ ~ A | 5 <u>post. cut. N</u> (above) |
| 3 sup ~ V | 3 ~ ~ V | 6 <u>n to quad. F.</u> (below) |

(B) 3 structure passing through great sciatic foramen to enter lesser sciatic foramen.:

- 1 Pudendal N
- 2 internal ~ vessels.
- 2 N to obturator internus.

Transverse Arch

formed By → Heads of 5 metatarsal bones and Cuneiform bones + cuboid

- Factor maintaining
 - muscle: Tendon of peroneus longus.
 - tendons + ligaments: interosseous lig.

	med. longitudinal Arch	Lat. longitudinal Arch
Ant	Head of med. 3 meta.	Head of lat. 2
U	tarsal Bones	metatarsal Bones
D	Post → med Tubercle of	Post → lat tubercle of
N	calcaneus	calcaneus.
E	Summit → sup. surface of	Summit → sup surface
	Talus (Key stone)	of Calcaneus
FACTOR maintaining	muscles → Tend. tibialis post. → Flex Hall. long. → Flexor Dig. long.	muscles → Tend. Flex. Dig. long. → Tend. ~ ~ ~ Prev. is
	Ligament → Spring lig. → planter. Appon.	Ligament → short planter → long planter

● Function ●

- 1 provide Elasticity.
- 2 Allow walking & out pain.
- 3 protection of deep structure.

N.B :

- Flat Foot → Depression of med. long tud. Arch
- Claw ~ → med. long tud. Arch Be to High

Inferior Gluteal N

- Branch from sacral plexus.
- Root value : ventral rami of L5, S1, S2.
- Course : it leave pelvis and enter gluteal region Through Greater sciatic foramen Below Piriforms Close to posterior cut. N. of The Thigh.
- Supply : Gluteus maximus.

Superior gluteal N

- Branch from sacral plexus.
- Root value : ventral rami of L4, L5, S1.
- Course : leave pelvis By passing Through Greater sciatic foramen above Piriforms.
- runs deep to Bet. gluteal medius & minimus supplying Them + Tensor Fascia lata.

Inferior Gluteal A

- Arise inside Pelvis from internal iliac.
- Enter gluteal Region By passing Through greater sciatic foramen Below Piriforms.
- Supply Gluteus maximus and gives The following Br:
 1. accompanying sciatic N.
 2. articular for Hip joint.
 3. Anastomosis for trochanteric cruciate.

Superior Gluteal A

- Arise inside Pelvis from internal iliac.
- Enter gluteal Region By passing Through GSF above Piriforms Then Dividing into Superficial Br enter Deep Surface of gluteal maximus - Deep : passes forward Bet medius - minimus art.

Gluteus Maximus

- origin : Back of ilium Behind post Gluteal line
Back of sacro tuberos ligament.
Back of sacrum.
- insertion : 1 superficial $\frac{3}{4}$ post. Border of iliotibial T.
2 Deep $\frac{1}{4}$ Gluteal tuberosity of femur.
- n. supply : inf Gluteal n
- Action : 1 Powerful Extensor for flexed thigh
2 stabilize Hip joint. laterally.
3 Anti Gravity muscle.

Relation

MM sing

- (1) Tendon → for obturator internus.
- (2) { ligament (sacro tuberos - sacro spinous)
Joint (Hip joint - sacro iliac j.)
foramina (GSF - LSF)
- (3) vessels (sup. G. v. - Inf. G. v. - Int. pud. v.)
- (4) Bones { Back of ilium - Greater trochanter
{ ischial tuberos - Back of sacrum
- (5) type of muscles { 2 Gemelli
{ Hamstring
{ Piriforms
{ Two Gluti
{ quadratus Femoris
- (6) Nerves { sciatic - post. cut. N. thigh - N. to quadratus
{ Gluteal N - pudendal N - N to obtur.
- (7) Bursa { For Greater trochanter
{ For ischial tuberosity
{ For upper part of vastus lateralis

G.S.V

- Thickest - largest vein in lower limb.
- longest superficial vein in Body.
- Beginning: at medial side of dorsum of foot as Contin. of med. End of dorsal Venous Arch.
- Termination: By Hooking on lower margin of saphenous opening and piercing cribriform fascia to drain in Femoral vein.
- Course:
 - 1 Ascending in front of med. malleolus.
 - 2 Ascending in lower $\frac{1}{3}$ of leg on med. surface of lower $\frac{1}{3}$ of tibia.
 - 3 Ascending on medial Border of Tibia.
 - 4 Ascending on med post aspect of Knee joint (Accompanying saphenous nerve.)
 - 5 runs vertically Along medial side of the Thigh and crosses roof of femoral Δ to reach s. open tributaries.
- Branches:

1 Gluteal	{ - Sopr. epigastric - Sopr. ext. pudendal - Sopr. circumf. iliac - Sopr. Dorsal Penis	
2 Above Knee		
3 Below Knee		{ - Ant. med. vein of Thigh - Post. lat.
		{ - Ant vein of leg. - Vein of linardo davinc

4 Tributaries Connect G.S.V + S.S.V.

[5] Perforating vein Connect Bet. G.S.V and Deep vein of lower limb. Foot - leg - Thigh:

most of These Containing valves. to permit passing of Blood from G.S.V to Deep veins after Contraction of Surrounding muscles. They Are:

1 vein Communicate Bet G.S.V and med-plant.v. on medial surface of foot.

2 vein Communicate Bet. G.S.V and Ant-tibial.v. ant to Ankle.

3 vein Communicate Bet. G.S.V and Post-tibial.v. Behind med Border of Tibia.

- Values: Contain 10-20 valves to numerous Below Knee And Dividing Blood into Columns to ↓ Pressure on lower part Distal part of wall of vein. Blood of These segments Drained to Deep veins...

• Applied Anatomy:

[1] Varicose vein of lower Limb:

Abnormal dilatation and tortuosity of G.S.V + S.V. lower limb
Due to → Incompetent valves of Perforating veins
→ Congenital weakness of wall of G.S.V.

[2] vascular graft.

[3] Venipuncter: Can done for G.S.V in front of medial malleolus. [constant position] for inject. of Solution - Blood transfusion.



Popliteal fossa

• Definition: inter muscular space at Back of Knee joint.

• Description: Diamond in shape Have

① Boundaries:

upper. lat.	→ Formed By Biceps Fem.	{ 4 Bound 4 Angle Roof floor Content
upper. Med.	→ ~ ~ semitendinosus	
lower. lat.	→ ~ ~ semimembranosus	
lower. med.	→ ~ ~ lat Head of gastrocnemius	

lower. lat. → palmaris (if present)
lat Head of gastrocnemius.
lower. med. → med. Head of gastrocnemius.

② Angles { sup
inf
med
lat

③ Roof { skin
sup. fasc { G.S.V
popliteal fascia { Post. Cul.

④ Floor { upper part → popliteal surface Fem.
middle part → Back of Capsule Knee
lower part → popliteus + Covering F

⑤ Contents:

- ① popliteal A.
- ② ~ ~ V
- ③ Tibial N.
- ④ Common peroneal N.
- ⑤ popliteal L.N.
- ⑥ Fatty connective tissue.



Popliteal A

- Beginning: at The adductor Hiatus as continuation of Femoral A.
- Termination: at lower border of popliteus to give to Terminal Branches Ant. tibial + post. tibial
- Course: 1 Descending downward as deepest structure of popliteal fossa and along its Course:
 - 2 upper part: medial to Tibial n + poplit. v
 - 3 Middle ~: Tibial n + poplit. v cross superficial to Artery from lat to medial.
 - 4 lower part: lateral to Tibial n + poplit. v
- Branches:

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 - 1 Muscular (Hamstring + Calf Muscles)
 - 2 genicular

[sup med. genic. + sup. lat. ~
 Inf med ~ + Inf ~ ~
 Middle genicular A
 - 3 Sural Branches: 2-3 accompany sural.
 - 4 Terminal Branches:

A - Ant. Tibial (small)
 B - Post. Tibial (large).

Ant. tibial A.

- Beginning : at lower Border of Popliteus as smaller Br of 2 terminal Branches of popliteal A.
- Termination : in front of Ankle joint midway Bet 2 malleoli By Becoming Dorsalis pedis A.

● Course :

- 1 Leave Post Compartment By passing Through gap in the interosus membrane to enter Ant Compartment.
- 2 in The Anterior Compartment Descending in front of interosus membrane.
- 3 in lower part of leg in front of Tibia Deep to sup. extensor retinaculum.

● Relation :

- ① muscles
- | | | | |
|---|------------------|---|------------------------------|
| [| upper 1/3 of leg | { | Tibialis Ant → medial |
| | | | Extensor Dig. lo. → lateral |
| | lower 2/3 | { | Tibialis Ant → medial |
| | | | Extensor Hall. lo. → lateral |
- ② nerve [triple relation]
- | | |
|---|-----------------------------|
| { | upper 1/3 nerve → lateral |
| | middle 1/3 nerve → in front |
| | lower 1/3 nerve → lateral |
- ③ vein : Along its courses accompany 2 vena comit.

● Branches : 1 Muscular Branches.

Anastomosis

- Around Knee [2 Ant. tibial Recurrent.
3 Post. tibial Recurrent.

Anastomosis

- Around Ankle [4 Ant medial malleolar.
5 Ant lateral malleolar.

The second choice for Arterial cannulation After Radial A.

(3)

التاريخ

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Femoral Artery

- **Beginning** : at midinguinal point of inguinal lig. as a continuation of external iliac A.
- **Termination** : By passing through adductor hiatus to continue as popliteal A.
- **Course** :
 ↗ upper $\frac{1}{2}$ in Femoral A.
 ↘ lower ~ ~ Adductor Canal.

● Relations :

	Anterior	Posterior	Medial	Lateral
Femoral A	• Skin - Fascia. • Femoral sheath. • @ to pectineus. • Fem. Br. of. genitof. @. • Med cut. @ of Thigh	• psoas major • profund Fem @ • @ to pectineus. • Femoral @ {lower}	Femoral v {upper}	Femoral @
Adductor Canal	• Skin - Fascia. • Sartorius. • fibrous roof. • Saphen. Cross.	• Adductor long. • ~ Magn. • Femoral @ {upper}	• Saphenous @ {lower}	- vastus M & its @ - Femoral @ {low}

Dorsalis pedis. A.

- **Beginning** : in front of Ankle joint midway bet. 2 malleoli as continuation of Ant. tibial A.
- **termination** : at proximal part of 1st intertarsal space By passing to sole and Anastomosis to lat. plantar A to form plantar Arch.
- **Course** : Passes forward in dorsum of foot.
- **Relation** : **1** crossed By :
 - inf. extensor retinac.
 - Ext. hallucis brevis
- **2** Crossing :
 - neck of Talus.
 - navicular
 - intermediate cuneiform.
- **3** Surrounding :
 - Ext. Hallucis. lo. → med.
 - Ext. Dig. lon. lo. → lat.

● Branches :

- 1 First Dorsal metatarsal (Before Entersole)
 - 2 ~ planter ~ (in sole)
 - 3 Arcuate Artery
 - 2nd
 - 3rd Dorsal metatars.
 - 4th
 - 4 medial Tarsal
 - 5 lateral Tarsal
- Anastomosis Around Ankle.



Post. tibial. A

- **Beginning**: at lower Border of popliteus as larger Branch of 2 terminal Branches of popliteal A.
- **Termination**: deep to flexor retinaculum & gives 2 terminal Branches (med. plantar, lat. plant.)
- **Course**:
 - 1 enter Back of leg By passing deep to tendinous Arch bet. tibia - Fibula.
 - 2 Descending in Back of leg bet deep layer and superficial layer.
 - 3 lower part of Back of leg become Behind tibia and Ankle joint Deep to Flexor retinaculum.

● Relation :

		Skin + Fascia.
[	superficial	Soleus muscle
		flexor retinaculum
[	Deep	Tibialis posterior
		Back of lower part of shaft of tibia
		Back of Ankle joint.
[	medial	→ Flexor digitorum longus
	lateral	→ Flexor hallucis longus

[	upper 1/3	nerve medial
	Middle 1/3	crosses sup. to lateral
	lower 1/3	nerve lateral

● **veins** Accompany 2 Vena Comitant.

- **Branches**:
- 1 muscular
 - 2 Circumflex fibular A
 - 3 medial (post.) malleolar
 - 4 medial calcaneal
 - 5 2 terminal Br.
 - 6 Peroneal & Commun. Br bet- it and peroneal
 - 7 nutrient for tibia



Peroneal A largest, longest Br

- Beginning: 1" Below origin of post. tibial A.
- Termination: Behind inf. tibio fibular Joint By Giving **terminal** Calcenial Br.
- Course: Running in **lat. Compartment** & **superf.** Peroneal @.
- Branches:
 - 1 muscular
 - 2 lat (post.) **medial** Calcenial
 - 4 Nutrient for fibula.
 - 3 lat Calcenial
 - 5 **perforating** Bet it and lat ~~metatarsal~~ of D.P.A.
 - 6 **communicating** Bet. it and pos. tibial A

medial Planter A

- Beginning: smaller termin. Br of Post tibial A.
- Ending: By supplying med. side of Big toe.
- Course: Runs deep to Abductor hallucis.
- Branches:
 - 1 Muscular
 - 2 Articular
 - 3 Cutaneous Br

lateral planter A

- Beginning: larger of term. Br of Post. tibial A.
- Ending: By at Base of 5th metatarsal Bone.
- Course: runs deep to Abductor digiti minimi.
- Branches:
 - 1 muscular.
 - 2 Anastomosis.
 - 3 Cutaneous Br.

Tibial N

- one of 2 terminal Branches of sciatic N at middle of Back of Thigh.
- root value : (L4, L5, S1, S2, S3) ventral rami

- Course : 1 Enter fossa from its sup. Angle.
2 Passing vertically downward as superficial structure bisecting fossa.
3 leave fossa from its lower End.

● Relation :

upper part → lat to vessels.

Middle ~ → superficial from lat to med.

lower ~ → med to it.

● Branches :

1 Muscular { Popliteus
palantaris
gastrocnemius
Soleus

2 Cutaneous { sural (n) }

3 Articular { Middle genicular
sup med ~
inf med ~

Common Peroneal N

- one of 2 terminal Branches of sciatic n on middle of Back of Thigh.
- root value : (L4, L5, S1, S2).
- Course :
 - 1 Enter fossa from its Superior Angle.
 - 2 Runs downward - laterally deep to tendon of Biceps femoris.
 - 3 leave fossa from its lat. Angle.
 - 4 Runs downward and lat. Crossing ten plant. and lat Head of gastrocnemius to reach lat aspect of neck of fibula to terminate By Giving 2 term. Branches
 - Ant. tibial (Deep peroneal)
 - musculo cut. (Superf. ~)
- Branches :
 - Cutaneous
 - lat cut. n of calf
 - Gural Communicating Br
 - Articular
 - sup. lateral genicular
 - inf ~
 - recurrent genicular
 - Terminal

Anterior tibial N

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● one of two terminal Branches of common peron. on the lat aspect of neck of fibula. Deep to peron. longus muscle. ● root value L5-S1, S2 (L4, L5, S1)

● Course :

lat

1 it leaves ~~post~~ compartment and Enter Ant Comp. By Piercing **Ant. interosius membrane** intermuscular septum.

2 Runs Downward in front of interosius memb.

3 lower part of the lig : passes in front of tibia. Then crosses in front of Ankle joint and Deep to Extensor Retinacula to terminate By Giving med, lat. Terminal Branches.

● Relations :

As Ant. tibial A

● Branches :

① Muscular

تغذیه

Tibialis Ant

Extensor Hallucis longus

~ Digitorum ~

peron. longus

Extensor Digitorum brevis (By

- its lat terminal Branch)

② Cutaneous → Adjoining sides of 1st, 2nd toe (By its medial Br.)

③ Articular → Kneec joint.

MUSCULO CUTANEUS N

- one of 2 terminal Br of Common peroneal N at lat aspect of neck of fibula deep to peroneus. Lo
- Course:
 - 1 piercing substance of peroneus longus.
 - 2 Passing Bet peroneus longus and brevis.
 - 3 lower $\frac{1}{3}$ of thigh leg pierce deep fascia to become superficial.
 - 4 Descending crossing superficially to Extens. retinacula to reach Dorsum of foot to terminate By Giving med, lat terminal Branches.

- Branches

① Muscular	{	peroneus longus.
	{	peroneus brevis.

② Cutaneus:

1. skin of lower $\frac{2}{3}$ of Ant. lateral Aspect of leg By (trunk of musculo cutaneus).
2. All dorsum of foot (By 2 terminal Br) Except:
 - medial margin $\rightarrow$ saphenous.
 - lateral $\sim \rightarrow$ Sural.
3. Dorsal Aspect of 5 toes Except:
 - $\rightarrow$ cleft Bet Big, 2nd toe By medial term. Br of Ant. tibial A.
 - $\rightarrow$ lat. Border of little toe By Sural @



Hip joint

- Type : Synovial poly Axial
- variety : Ball-socket
- Articular surface
 - Head of Femur
 - Acetabulum of Hip Bone
- Capsule : Attached to Articular surface margin.

Ligaments:

[1] Ilio femoral ligament:

shape : inverted Y shaped Have stem and 2 limbs.

Attached: Stem → Anterior inferior iliac spine
2 Limbs → inter trochantric line.

Function: Prevent Hyper Extension.

[2] ischio femoral. [3] pubo femoral.

[4] transverse Acetabular ligament:

Convert Acetabular notch into foramen.

[5] Round ligament of Head of femur:

Transmit Acetabular A to Head of femur.

• movement of Hip joint:

[1] Flexion:

- A. sartorius.
- B. psoas Major.
- C. Pectineus.
- D. iliacus.
- E. Rectus Femories

[2] Extension:

- A. Gluteus maximus.
- B. Semi membroneusis.
- C. Semi tendenosus.
- D. BiCeps Femories
- E. ischial part Add. mag.

③ Adduction:

- A. Adductor longus.
- B. ~ brevis.
- C. ~ magnus (pubic).
- D. Gracilis.
- E. obturator Externus.

④ Abduction:

- A. Gluteus medius.
- B. Gluteus minimus.
- C. Tensor Fascia Lata.

⑤ Lat. rotation:

- A. Piriformis.
- B. obtur. intern.
- C. ~ Extern.
- D. 2 Gemilli.
- E. Quadratus Femor.

⑥ med. rotation:

- A. Gluteus medius.
- B. ~ minimus.

● n. Supply:

- obturator N
- Femoral N
- Sciatic N

Knee joint

• type : Synovial joint modified Hinge.

• variety : Condylar

• Articular Surface :
 → Femoral Condyle
 → Tibial Condyle
 → Patella & Femur.

• Fibrous Capsule : Attached to Articulation Surface
 Except But above origin of popliteus.

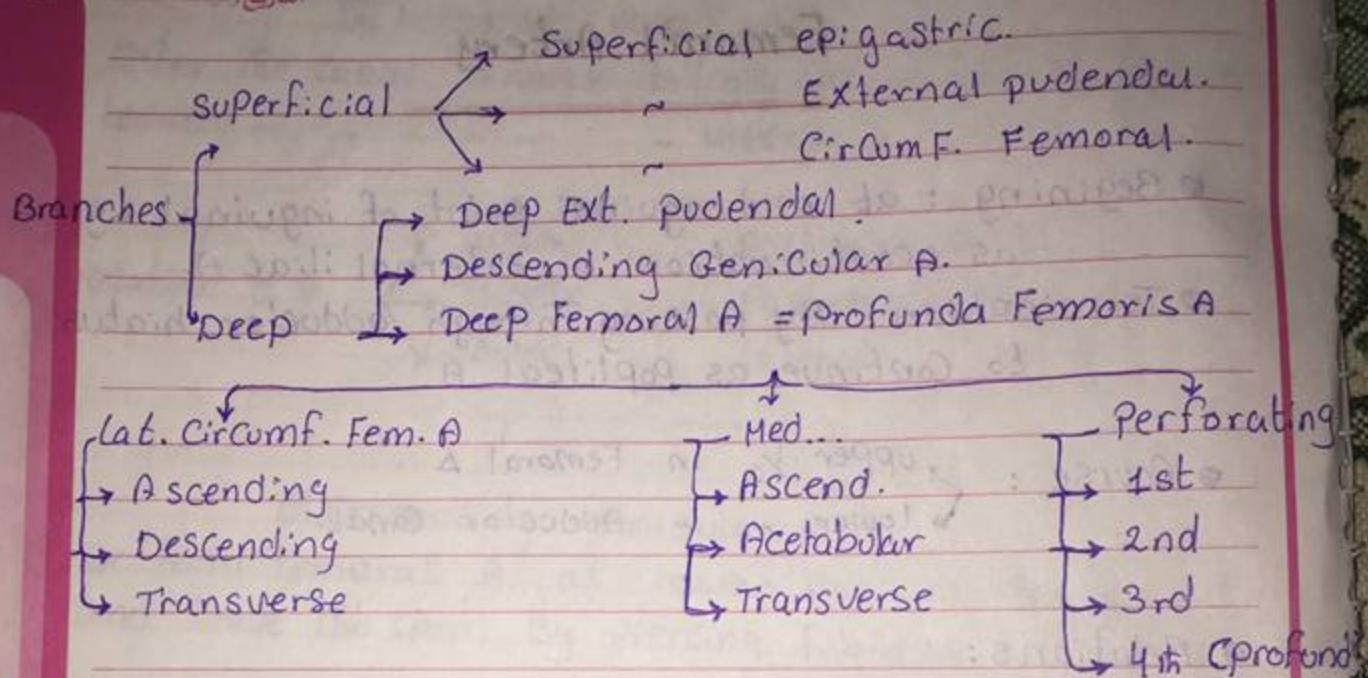
• Extra Capsular Ligament {
 Ant : Patellar lig.
 Post : **obl. que popliteal** lig.
 Med : Tibial Collateral lig.
 Lat : Fibular

• Intra Capsular structure :

① paired ; {
 2 Coronary ligaments
 2 menisciae Femoral ligaments
 Ant Cruciate lig → Prevent post. Disl.
 Post ~ ~ ~ Ant ~
 med meniscus : Fixed Because att.
 to capsule so its more liable to injury.

lat meniscus : more mobile
 Because separate from capsule By tendon of popliteus.

② singled : {
 Tendon of popliteus.
Transverse ligament of Knee joint
 infra Patellar pad of fat.
 synovial membrane.



④ Superficial Branches : = Superf. inguinal

① Superficial epigastric :-

Passes Through saphenous opening to Supply SKIN & Fascia of A.A.W. Below umbilicus.

② Superficial Circumflex Iliac A:

Passes ~ ~ ~ ~ ~

Around ASIS

③ Superficial External Pudendal :

Passes ~ ~ ~ ~ ~

of External Genitalia.

● movement :

① Flexion

→ Hamstrings
→ popliteus
→ gastrocnemius

② Extension → Quadriceps femoris.

③ rotation :

A. Evitable :

lat rotation : Biceps Femoris

med rotation : SGS
→ Popliteus

B. in Evitable :

* med. rotation

At end of Extension
(locking) for knee joint

Because of : ① Ant. post diameter of medial side of joint is longer than of lateral side.

② Ant cruciate tense before Full Extension.

* lat. rotation (unlocking)

- at Beginning of Flexion.

- Produced by only popliteus.

● Arterial supply : By Anastomosis Around knee joint.

● n. supply : By Genicular Branches

→ med. poplit. A

→ lat. poplit. A



[2] Deep Branches:

① Deep Ext. pudendal:

Passes medially Behind Femoral vein to supply Ext. genit.

② Descending Genicular A:

Arise From Femoral A at lower part of adductor canal. Runs Downward Accompanying the tendon of ischial part of Adductor magnus to reach Back of medial condyle of Femur to share Anastomosis Around Knee joint.

③ Deep Femoral = profunda Femoris A:

• Largest Br + main oxygenat Blood source to Thigh

• Beg: Arise from posterio lateral Aspect → 4 cm Below ing. lig.

• Course - Relations:

1 Runs Downward & laterally on psoas major.

2 ~ ~ ~ ~ ~ Medially ~ Pectineus. separate it

From Femoral vessels.

3 leaves Femoral A By passing Bet. Pectineus & Adductor long.

4 Contin. Downward Bet longus - prev's Then Bet. longus & pubic part of magnus.

• Termination: at mid thigh By Become 4th perforat. A.

• separated From Femoral A By longus.

• Branches:

1 lat Circumflex Femoral :-

Runs lat. Bet Br. of Femoral A to reach Sartorius which it Dividing deep to it into:

→ Ascending Br → Anastomosis Around ASIS

→ Descending ~ → ~ ~ ~ ~ ~ Knee joint

→ Transverse ~ → ~ ~ ~ ~ ~ cruciate Anastomosis

2 Med. Circumflex Femoral A :

passes **Post.** Bet Psoas & pectin. to reach obturator externus where it gives acetabular Br → Supply Head of femur. Then continue to Tendon to reach **Back of Thigh** where it Dividing into 2 Branches:

Ascending → Trochanteric Anastomosis.

Transverse → Cruciate

3 Perforating Branches :

3 in number But profunda continue as the 4th one. passes Through Tendonous Arch at insertion of isch. Part of adductor magnus.

1st Br → Cruciate Anastomosis

2nd ~

3rd ~

4th ~

→ **Femur + Muscle of Back of Thigh**

Anastomosis Around Knee joint

Collateral Circulation

[1] Anastomosis Around ASIS :

- Provide Collateral Anastomosis if obstruction of (Ext. iliac - Femoral A) Above origin of Profunda.
- Branches
 - 1 Br from Sup. Gluteal A (Iliac internal A)
 - 2 ~ ~ inf. ~ ~ (internal iliac A)
 - 3 Superficial Circumflex Femoral A (Femoral A)
 - 4 Deep ~ ~ ~ (Ext. iliac A)
 - 2 Ascending Br of lat. Circumflex Femoral A (CF)

[2] Anas trochantric Anastomosis :

- lying on trochantric fossa.
- Supplies Areticular A to Head of femur + Connect Femoral A
internal iliac
- Branches
 - 1 Br from Superior Gluteal
 - 2 ~ ~ inferior ~ ~
 - 3 Ascending Br of Med Circumflex Femoral A
 - 4 Br. From lat Circumflex ~ ~

[3] Cruciate Anastomosis :

- in upper Back of Thigh at level of lesser trochanture.
- Connect Bet internal iliac + Femoral A.
- Branches
 - 1 Transverse Br of lat Circumflex Fem. A
 - 2 ~ ~ ~ Med ~ ~
 - 3 Descending Br of inferior gluteal A
 - 4 Ascending Br of 1st perforating Br.



[4] Anastomosis on Back of Thigh:

- Connect above & Crociate Below & Anast. Around Knee joint.
- Formed By Perforating Branches of Profunda Femoris

[5] Anastomosis Around Knee Joint:

- 1 4th Perforating Br of Profunda femoris A.
- 2 Descending Genicular A.
- 3 Descending Br of lat Circumflex femoris A.

4 Sup medial genicular a

5 inf medial genicular a

6 Sup lateral genicular a

7 inf lateral genicular a

8 Middle genicular a

9 Ant. tibial recurrent. A

10 post. ~ ~ ~ A [Ant. tibial A]

11 Circumflex Fibular A

[Posterior A]

Posterior tibial

Femoral triangle

- Definition: inter muscular space at upper $\frac{1}{3}$ of the front of the Thigh.
- Description: Δ has
 - Apex - Base
 - med. Bound. - lat. Bound.
 - Roof - floor
 - Contents

□ Apex: Directed downward - forming By overlapping of Sartorius on adductor longus.

□ Base: Directed upward - Formed By inguinal ligament.

□ med. Bound.: Formed By med. Border of adduct. longus

□ lat. Bound.: ~ ~ lat med. ~ Sartorius.

□ Roof: 1 Skin

2 superficial fascia + contents of it

3 Deep fascia + saphenous opening.

□ Floor: By 4 muscles from medial to lateral:

1 adductor longus.

2 pectineus.

3 psoas Major.

4 iliacus.

□ Contents:

1 Femoral sheath + Contents.

2 Femoral Artery + 5 Branches. (except desc. genic. A)

3 Femoral vein + its tributaries.

4 Femoral nerve + its Branches

● femoral Br of genito femoral N + lat. cut N of Thigh

5 Deep inguinal lymph nodes.